<u>CLAIM AMENDMENT(S)</u>

Claims 1-50 remain in the application. Claim 17 has been amended. No claims have been canceled or added. A listing of claims follows:

1. (Original) A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:

instantiating a coordinator transaction agent that includes an itinerary and a state machine, said itinerary indicating a plurality of network elements , said plurality of network elements in communication with said coordinator transaction agent;

said coordinator transaction agent causing itself to be replicated onto said plurality of network elements according to said itinerary;

each of said replicated transaction agents causing an indication of their replication to be communicated back to said coordinator transaction agent; and

said coordinator transaction agent coordinating operations of said state machine in each of said replicated transaction agents to implement a distributed state machine.

2. (Original) The machine-readable medium of claim 1, wherein said coordinator transaction agent causing itself to be replicated comprises:

said coordinator transaction agent causing communication of a replication of said coordinator transaction agent to a first of said plurality of network elements;

said replicated transaction agent in said first network element causing communication of a replication of itself to a second of said plurality of network elements.

3. (Original) The machine-readable medium of claim 1 further comprising:

a first of said replicated transaction agents autonomously rolling back said state machine based on a criteria.

4. (Original) The machine-readable medium of claim 3 wherein said criteria includes determining a time out period has been consumed.

5. (Original) The machine-readable medium of claim 1 wherein said coordinator transaction agent includes a facility list, said facility list comprising a list of facilities to cross connect within a network element.

6. (Original) The machine-readable medium of claim 1 wherein said operations includes:
disabling a first facility and a second facility;
entering a cross connect for both facilities; and
enabling said first facility and second facility.

7. (Original) The machine-readable medium of claim 1 wherein said distributed state machine is transitioned in lock step.

8. (Original) The machine-readable medium of claim 1 wherein said distributed state machine is transitioned in turn.

9. (Original) The machine-readable medium of claim 1, wherein said operation of said distributed state machine causes the formation of a circuit through said plurality of network elements.

10.   (Original) The machine-readable medium of claim 1, wherein said operation of said distributed state machine causes the destruction of a circuit through said plurality of network elements.

11.   (Original) The machine-readable medium of claim 1, wherein said operation of said distributed state machine causes the labeling of a circuit cross connection through said plurality of network elements.

12.   (Original) The machine-readable medium of claim 1 further comprising:
each of said replicated transaction agents autonomously rolling back said state machine based on a criteria.

13.   (Original) The machine-readable medium of claim 1 wherein said plurality of network elements are switching network elements.

14.   (Original) The machine-readable medium of claim 1, wherein operations of said distributed state machine causes:
said coordinator transaction agent causing communication of a program to a first of said plurality of network elements;
said replicated transaction agent in said first network element causing communication of said program to a second of said plurality of network elements.

15.   (Original) The machine-readable medium of claim 14 wherein said network element is a computing network element.

16.   (Original) A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:

A) instantiating a coordinator transaction agent that includes an itinerary and a state machine, said itinerary indicating a plurality of network elements onto which said transaction agent is to be replicated, said plurality of network elements in communication with said transaction agent;

B) said coordinator transaction agent causing itself to be replicated and transmitted out;

C) said coordinator transaction agent receiving from each of said replicated transaction agents an indication of their replication;

D) said coordinator transaction agent transmitting an indication for delivery to each of said replicated transaction agents that instructs them to perform a currently selected step of said state machine in their network element;

E) said coordinator transaction agent receiving from each of said replicated transaction agents an indication of their completion of said currently selected step; and

said coordinator transaction agent selecting a next state as said currently selected state of said state machine and repeating D and E until a final state of said state machine is reached.

17.   (Currently Amended) A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:

receiving at a network element a replication of a transaction agent that includes an itinerary and a state machine, said itinerary indicating a plurality of network elements onto which said transaction agent is to be replicated;

said network ~~elements~~ element responsive to said replicated transaction agent,

transmitting an indication of said replicated transaction agent's instantiation to a

coordinator transaction agent;

said network element, responsive to said replicated transaction, replicating said replicated

transaction agent and transmitting said replication to one of said plurality of

network elements;

responsive to receiving state advance communications from said coordinator transaction

agent, said replicated transaction agent in said network element causing the

performance of the next state of said state machine; and

responsive to said replicated transaction agent in said network element detecting

successful or unsuccessful completion of the current state in its network element,

causing the transmission of an indication to said coordinator network element.

18.   (Original) The machine-readable medium of claim 17 wherein said detecting said

unsuccessful completion of the current state is caused by the failure of said replicated

transaction agent to successfully complete a set of transactions.

19.   (Original) The machine-readable medium of claim 18 wherein said replicated transaction

agent invokes a roll back of said set of transactions.

20.   (Original) The machine-readable medium of claim 17 further comprising said replicated

transaction agent invoking transactions to provision a cross connect.

21.   (Original) The machine-readable medium of claim 20 further comprising a facility list,

said facility list containing a list of facilities to cross connect within said network

element.

22.   (Original) The machine-readable medium of claim 20 wherein said invoking transactions to provision a cross connect includes:

disabling the facilities to have said cross connect;

generating said cross connect for said facilities; and

enabling said facilities.

23.   (Original) A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:

generating a coordinator transaction agent, said coordinator transaction agent includes an itinerary component and a state machine, said itinerary component includes a list of network elements to replicate to;

replicating a plurality of transaction agents to said plurality of network elements as described in said itinerary component;

detecting said plurality of said transaction agents have replicated to said plurality of network elements; and

instructing said state machines of said plurality of transaction agents to alter state upon executing a set of transactions.

24.   (Original) The machine-readable medium of Claim 23 wherein said set of transactions includes transactions to provision a circuit connection.

25.   (Original) The machine-readable medium of Claim 23 wherein said set of transactions includes transactions to install software.

26.   (Original) The machine-readable medium of Claim 23 wherein said set of transactions includes transactions to label cross connects.

27. (Original) The machine-readable medium of Claim 23 wherein said set of transactions includes transactions to un-provisioning a circuit connection.

28. (Original) The machine-readable medium of Claim 23 wherein each of said plurality of transaction agents include a facility list, said facility list comprising a list of facilities to cross connect within a network element.

29. (Original) The machine-readable medium of Claim 23 wherein said set of transactions includes transactions to:

disable a first facility and a second facility;

enter a cross connect for both facilities; and

enable said first facility and second facility.

30. (Original) The machine-readable medium of Claim 23 wherein said detecting further comprises:

delivering to said coordinator transaction agent a message from said plurality of transaction agents notifying said coordinator transaction agent that each of said plurality of replicated transaction agents is prepared to execute transactions to generate a circuit connection.

31. (Original) The machine-readable medium of Claim 30 wherein said message is delivered from a last one of said plurality of transaction agents to be replicated.

32. (Original) The machine-readable medium of Claim 23 wherein said plurality of transactions agents execute said set of transactions in lock step.

33. (Original) The machine-readable medium of Claim 23 wherein said plurality of transactions agents execute said set of transactions in turn.

34. (Original) The machine-readable medium of Claim 23 wherein said instructing further comprises:
delivering a message from said coordinator transaction agent to one of said plurality of transaction agents, said message instructing said state machine to transition state.

35. (Original) The machine-readable medium of Claim 34 wherein said message is delivered to a first of said plurality of transaction agents to be replicated.

36. (Original) The machine-readable medium of Claim 23 wherein said coordinator transaction agent is resident on a EMS.

37. (Original) The machine-readable medium of Claim 23 wherein said coordinator transaction agent and said plurality of transaction agents are a type of mobile agent.

38. (Original) The machine-readable medium of Claim 23 wherein said coordinator transaction agent and said plurality of transaction agents reside in agent environments.

39. (Original) The machine-readable medium of Claim 23 wherein said replicating a plurality of transaction agents includes:
receiving authentication from said network elements before replicating.

40. (Original) The machine-readable medium of Claim 23 wherein said detecting and instructing, together represents a distributed two-phase commit protocol.

41. (Original) The machine-readable medium of Claim 23 further comprising:

responding to an unsuccessful state transition with a transaction roll back.

42. (Original) The machine-readable medium of Claim 41 wherein said unsuccessful state

transaction is caused by a transaction time-out mechanism.

43. (Original) A network management system comprising:

a coordinator transaction agent including,

    a state machine to coordinate a distributed sequence of transactions across a

        plurality of network elements;

    an itinerary identifying said plurality of network elements ; and

said distributed sequence of transactions to be performed on said plurality of network

    elements, said state machine including states to replicate said coordinator

    transaction agent to said plurality of network elements and execute said

    distributed sequence of transactions.

44. (Original) The network management system of claim 43 wherein said sequence of

transactions include transactions to provision a circuit.

45. (Original) The network management system of claim 43 wherein said sequence of

transactions include transactions to install software.

46. (Original) The network management system of claim 43 wherein said sequence of

transactions includes transactions to label cross connects.

47. (Original) The network management system of claim 43 wherein said sequence of

transactions includes transactions to un-provision a circuit.

48. (Original) The network management system of claim 43 wherein said coordinator transaction agent is resident on a EMS.

49. (Original) The network management system of claim 43 further comprising:
a viewer, said viewer requesting said circuit connection to be generated, said viewer receiving a message from said coordinator transaction agent that the circuit connection is complete.

50. (Original) The network management system of claim 43 where said coordinator transaction agent is a type of Java based mobile agent.